

CLAIMS

1. A method of making infrared data communication modules comprising the steps of:

5 forming predetermined wiring patterns on an obverse and a reverse surfaces of a substrate;

mounting, on one of the surfaces of the substrate, a group of components including plural sets of light emitting elements and light receiving elements;

10 resin-packaging the group of components mounted on the substrate; and

dividing the resin-packaged components into a plurality of infrared data communication modules each of which includes a respective set of light emitting element and light receiving element;

15 wherein the resin-packaging step comprises forming a plurality of mutually separated resin packages each of which collectively seals at least two sets of light emitting elements and light receiving elements.

20 2. The method of making infrared data communication modules according to claim 1,

wherein the mounting step includes arranging the plural sets of light emitting elements and light receiving elements in a matrix on said one surface of the substrate; and

25 wherein the resin-packaging step includes forming the packages so as to be arranged in a matrix.

3. The method of making infrared data communication modules according to claim 1, wherein the substrate is elongated in one direction to be rectangular or strip-like, the substrate being formed with a plurality of slits extending widthwise of the substrate and spaced from each other longitudinally of the substrate, the group of components being mounted on said one surface of the substrate in each of regions defined ~~between the slits~~

4. The method of making infrared data communication modules according to claim 1, wherein the pattern forming step includes forming, on the reverse surface of the substrate, terminals for connection to through-holes penetrating the substrate thicknesswise together with dummy patterns which are substantially equal in thickness to the terminals.

5. The method of making infrared data communication modules according to claim 1, wherein the pattern forming step includes forming, on the reverse surface of the substrate, terminals for connection to through-holes penetrating the substrate thicknesswise, the terminals being elongated to be substantially rectangular for bonding to an external mounting board.

6. An infrared data communication module made by the steps of: forming predetermined wiring patterns on an obverse and a reverse surfaces of a substrate; mounting, on one of the

surfaces of the substrate, a group of components including plural sets of light emitting elements and light receiving elements; resin-packaging the group of components mounted on the substrate; and dividing the resin-packaged components  
5 into a plurality of infrared data communication modules each of which includes a respective set of light emitting element and light receiving element;

wherein the resin-packaging step comprises forming a plurality of mutually separated resin packages each of which  
10 collectively seals at least two sets of light emitting elements and light receiving elements.

7. The infrared data communication module according to claim 6,

15 wherein the substrate is formed with through-holes penetrating the substrate thicknesswise; and

wherein the reverse surface of the substrate is formed with terminals for connection to the through-holes and dummy patterns which are substantially equal in thickness to the  
20 terminals.

8. The infrared data communication module according to claim 7,

wherein the obverse surface of the substrate includes  
25 sub-areas each for mounting a respective set of light emitting element and light receiving element;

wherein the wiring patterns are formed respectively in the sub-areas; and

wherein the dummy patterns correspond in position and in general configuration to the wiring patterns.

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9. The infrared data communication module according to claim 6,

wherein the substrate is formed with through-holes penetrating the substrate thicknesswise;

10 wherein the reverse surface of the substrate is formed with terminals for connection to the through-holes and for bonding to an external mounting board; and

wherein the terminals are elongated to be substantially rectangular.

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10. The infrared data communication module according to claim 9, wherein the terminals are so formed as to project from an obverse surface of the mounting board when the substrate is mounted on the mounting board with the reverse surface of the substrate oriented perpendicularly to the obverse surface of the substrate.

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